



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/829,060 | 04/20/2004 | Su-Tsai Lu | 04146-UPL | 7493 |

33804 7590 08/23/2006

LIN & ASSOCIATES INTELLECTUAL PROPERTY
P.O. BOX 2339
SARATOGA, CA 95070-0339

EXAMINER

NGUYEN, HOA CAO

ART UNIT PAPER NUMBER

2841

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/829,060

Applicant(s)

LU ET AL.

Examiner

Hoa C. Nguyen

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 11-13 and 18-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 14-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1 Pg.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 11-13 and 18-29 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 6/24/06. Claims 1-10 and 14-17 are treated on the merits in this Office Action.

Specification

2. The disclosure is objected to because of the following informalities:
(a) Specification, page 6, line 20: The "silicone" must be changed to "silicon".
Appropriate correction is required.

Claim Objections

3. Claims 1-10 and 14-17 are objected to because of the following informalities:
(a) Claim 1: The "plural" in lines 5, 6, 9, 11, and in claim 17, line 2 must be changed to "plurality" for the consistency with the "a plurality of ..".
(b) Claim 17: The "plural" in line 2 must be changed to "plurality" for the consistency with the "a plurality of .." in claim 1.
(c) Claims 6 and 7: The "silicone" must be changed to "silicon".
(d) Claims 2-10 and 14-17 are dependent claims of claim 1.
Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-10 and 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 4 and 5, the limitation "a buffer layer being coated on said protection layer and said plural of metal pad" fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The buffer layer is indeed being coated on the protection layer 105 and on the first adhesive metal layer 110. The buffer layer is not coated on the metal pad 103, as disclosed in the drawings.

For continuing examination, the examiner only considers the buffer layer is being coated on the protection layer 105 and on the first adhesive metal layer 110.

Examiner remarks: The examiner suggests the "a buffer layer being coated on said protection layer and said plural of metal pad" be changed to "a buffer layer being coated on said protection layer and said first adhesive metal layer".

Regarding claim 1, the limitation "a first metal layer covering said buffer layer" fails to particularly point out and distinctly claims the subject matter which applicant regards as the invention.

As disclosed in the specification and in the drawings, the first metal layer 109 is indeed formed on a surface of the buffer layer 107/107a/107b but independently distributed over the areas that are parallel and adjacent to the metal pads.

The limitation creates an impression that the first metal layer 109 continuously distributed over a surface of the buffer layer. This limitation creates a short circuit when

Art Unit: 2841

the electrodes 113a and 113b. The short circuit is not occur if and only if the metal layer 109 is discrete over the areas parallel and adjacent to the metal pads.

For continuing examination, the examiner considers the metal layer 109 is discrete.

Examiner remarks: The examiner suggests the "a first metal layer covering said buffer layer" be changed to:

"a first metal layer covering on said buffer layer over a surface area opposite to said first adhesive metal layer and said protection layer, wherein said first metal layer is independently distributed over said buffer surface areas that are parallel and adjacent to the first adhesive metal layer".

Claims 2-10 and 14-17 are dependent claims of claim 1.

Allowable Subject Matter

6. Claims 1-10 and 14-17 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Reasons for Allowance

7. The following is an examiner's statement of reasons for allowance: The prior arts fail to teach, disclose, suggest, either alone or in combination, at least on claim 1, a combination of a buffer layer formed in between a metal adhesive layer and a metal layer and a bonding layer formed on another substrate/layer/board/card/chip, wherein the bonding layer and electrodes (formed on the same surface as the bonding layer) are independently distributed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Citation of Relevant Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Leung (US 6872984) discloses a method of sealing a hermetic lid to a semiconductor die at an angle.

Chen (US 6618269) discloses a discrete circuit component and process of fabrication.

Chiu et al. (US 6586322) disclose a method of making a bump on a substrate using multiple photoresist layers.

Kudoh et al. (US 6373714) disclose a surface mounting part.

Tanaka (US 5889326) discloses a structure for bonding semiconductor device to substrate.

Tatoh et al. (US 20030005582) disclose a circuit board, method for manufacturing same, and high-output module.

Hirashima et al. (US 6309737) disclose a circuit substrate.

Hogerton et al. (US 5714252) disclose a deformable substrate assembly for adhesively bonded electronic device.

Ishikawa et al. (US 7069645) disclose a method for producing a circuit board.

Shimizu (US 6740823) discloses a solder bonding method, and electronic device and process for fabricating the same.

Lauffer et al. (US 6739027) disclose a method for producing printed circuit board with embedded decoupling capacitance.

Perry et al. (US 6858111) disclose a conductive polymer interconnection configurations.

Liu et al. (US 6744142) disclose a flip chip interconnection structure and process of making the same.

Kang et al. (US 6337522) disclose a structure employing electrically conductive adhesives.

Perry H. et al. (US 6333104) disclose a conductive polymer interconnection configurations.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa C. Nguyen whose telephone number is 571-272-8293. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

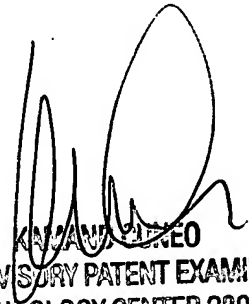
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 2841

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hoa C. Nguyen
8/16/06



HOA C. NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800